ANTIRHEA AROMATICA (RUBIACEAE, GUETTARDEAE), A NEW SPECIES FROM VERACRUZ, MEXICO[1]

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ABSTRACT

A new species of Rubiaceae, *Antirhea aromatica* Castillo-Campos & Lorence, is described from central Veracruz, Mexico. A tree of the tropical semideciduous forest, it appears to be very localized in distribution and is the first record of the genus for Veracruz. Its distribution, habitat, and affinities are discussed, and specimen citations are given.

RESUMEN

Se describe una nueva especie de Rubiaceae, *Antirhea aromatica* Castillo-Campos & Lorence, del centro de Veracruz, México. Se trata de un árbol que crece en la selva mediana subperennifolia, con área de distribución muy restringida y además se registra el género por primera vez para Veracruz. Se discute su distribución, hábitat y afinidades, y se citan los ejemplares examinados.

During the course of studies on Mexican Rubiaceae and on the vegetation around Jalcomulco in central Veracruz, several collections were encountered which represent an undescribed species of *Antirhea* of the tribe Guettardeae. Members of the Guettardeae are characterized by having a two- to many-locular ovary in which each locule has a single anatropous ovule, a corolla with the stamens inserted in the throat, and a usually cymose inflorescence. *Antirhea* Comm. ex A. L. Juss. is distinguishable from the other neotropical genera in the tribe by the following combination of characters: an axillary, usually dichotomous, cymose inflorescence, a corolla with strongly imbricate lobes, one or two of them being exterior, included anthers, and a drupaceous fruit with two to nine cells and a deciduous calyx (Standley, 1934).

Our species is readily accommodated into both the Guettardeae and *Antirhea* itself. Its biflorous inflorescence represents a dichotomous cyme where each inflorescence branch has been reduced to a single flower. Such biflorous cymes, as well as those reduced to solitary flowers, also occur in a number of Antillean *Antirhea* species (Standley, 1934).

Antirhea is a genus of about 50 species distributed in the Paleotropics of Madagascar, the SW Indian Ocean islands (Comores, Mascarenes), W India, Asia, Indonesia and Australia, and also in the American tropics where it is best represented in the Antilles. Standley (1934) recognized 31 American species, most of which occur in the larger islands of Cuba, Hispaniola, Jamaica, and Puerto Rico. One Antillean species, *A. lucida* (Sw.) Benth. & Hook., reaches Mesoamerica where it has been reported from Belize (Standley & Williams, 1975), Guatemala, and more recently from Quintana Roo in Mexico (Téllez V. & Sousa S., 1982). A second species, *A. trichantha* (Griseb.) Hemsl., is known only from Panama (Dwyer, 1980). Our new species represents the first report of the genus from Veracruz.

The majority of *Antirhea* species appear to have extremely restricted distribution patterns, i.e., most are endemic to a single island or are known only from the type locality. As Veracruz and the adjacent states have been relatively well collected, the new species may be endemic to the state.

Antirhea aromatica Castillo-Campos & Lorence, sp. nov. TYPE: Mexico. Veracruz: Municipality of Jalcomulco; ca. 10 km S of Apazapan, Barranca de Monterrey, S of Cuetzalan, between Cuetzalan and Apazapan;

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semideciduous forest, 350 m, 17 Sept. 1983 (fl, fr), *Castillo-Campos 2957* (holotype, XAL; isotypes, MEXU, XAL). Figure 1.

Arbor 6–15 metralis lenticellata. Folia petiolata; lamina elliptica vel ovato-elliptica glabrata 90–200 mm longa 40–90 mm lata. Inflorescentiae axillares biflores; pedunculus 20–45 mm longus. Flores sessiles pubescentes; cupula calycis 5–6 mm longa, lobis calycis 4–5 triangularibus subulatis 4–8 mm longis; corolla alba aromatica, tubo 90–117 mm longo, lobis 4–5, 10–16 mm longis; antherae 4–5 ca. 8 mm longae. Fructus baccatus pubescens resinosus elliptico-oblongus 25–37 mm longus 10–17 mm latus, costulis longitudinalibus 6–8 prominentibus; semina 7–10 cylindrica 25–30 mm longa.

Trees 6–15 m tall, 10–30 cm dbh, the bark whitish, flaking near the base, the blaze pinkish with white rays, the wood yellow. Stems brownish, lenticellate, 3–4 mm diam., the internodes crowded apically, the new growth hirtellous, resinous; stipules caducous, brown, resinous, ovate-deltoid, naviculate, 11–14 mm by 5–7 mm, the apex acute to acuminate, the broad margins scarious, externally hirtellous, internally pilose basally, lined with a deltoid patch of digitate glands, each 0.5–0.6 mm long. Leaves in subequal pairs, petiolate; petioles 15–60 mm by 0.8–1 mm, hirtellous, slightly canaliculate adaxially; lamina elliptic to ovate-elliptic, 90–200 mm by 35–90 mm, the apex shortly acuminate or rarely acute, the acumen 5–20 mm long, usually falcate, the base narrowly cuneate to cuneate, often more or less attenuate, the sides subequal, the secondary veins 6–8 pairs, festooned brochidodromous, the ultimate venation prominently reticulate, visible on both surfaces, chartaceous, slightly discolorous, drying brownish or greenish, both surfaces appressed hirtellous-hirsutulous especially when young, glabrescent, the costa and veins hirsutulous, the secondary vein axils barbate abaxially, the margin ciliolate, callose. Inflorescence axillary, several generally produced near the branch apex, each with 2 flowers; peduncle 20–45 mm by 0.8–1.2 mm, appressed hirtellous. Flowers sessile, each subtended by 1(–2) persistent often bilobed ovate-naviculate involucral bracts 5–8 mm by 4–6 mm, acute, carinate, the margins scarious, each lined with a deltoid patch of digitate glands; hypanthium obconical, 2–2.5 mm long, tomentose; calyx cup 5–6 mm long, tubular, externally sparsely hirsutulous, internally with 5 deltoid patches of digitate glands alternating with the lobes; calyx lobes (4–)5, deltoid-subulate, 4–8 mm by 1.5–2.5 mm basally, externally sparsely hirsutulous. Corolla white, aromatic when fresh, salverform, the tube cylindrical, 90–117 mm long by 4–5 mm wide medially, externally hirsutulous, more or less resinous basally, the lobes (4–)5, imbricate in bud, ovate-elliptic, 10–16 mm by 5–7 mm, obtuse, externally hirsutulous, internally glabrous, recurved at anthesis, the margin undulate; stamens (4–)5, interlobular, sessile, affixed ca. 5 mm below the faux; anthers linear-subulate, 8–9 mm by 1 mm, the base cordate, the apex acute, exserted for 2–3 mm; style 40–70 mm long, sparsely spreading-hirsutulous; ovarian disc 1.5 mm long, doughnut shaped; ovary 7–10-locular, the ovules pendulous. Fruit drupaceous, obovoid-ellipsoid, 25–37 mm by 10–17 mm, 6–8-costate, sparsely hirtellous, resinous, the pericarp thin, fleshy, yellowish when ripe, the calyx ultimately deciduous; seeds 7–10, tightly adherent, narrowly ellipsoid, 25–30 mm by 3–5 mm medially, more or less curved, the testa tough, spongy; embryo cylindrical.

Distribution. The species is known only from the type locality in central Veracruz, near the towns of Jalcomulco and Apazapan in the municipality of Jalcomulco at altitudes of 350–500 m.

Specimens examined. MEXICO. VERACRUZ: Municipality of Jalcomulco, ca. 10 km S of Apazapan, Barranca de Monterrey, S of Cuetzalan, between Cuetzalan and Apazapan, 350 m, *Castillo C. 2987* (XAL), *Robles 248* (XAL); vicinity of Jalcomulco, ca. 500 m, 25 July 1973, *Gándara & Dorantes 90* (F, MEXU, MO).

In addition, ca. 50 more isotypes will be distributed shortly to a wide range of herbaria.

Phenology. Flowering occurs during July and August; the fruits are produced concurrently and ripen in October. The somewhat fleshy, yellow pericarp suggests bird dispersal, although no recent regeneration was observed locally.

The specific epithet refers to the strong, gardenia-like fragrance produced by the flowers in the evening. This, together with the long, tubular white corollas, is characteristic of plants with a hawkmoth pollination syndrome. The patches of digitate glands within the stipules, floral bracts, and calyx tube apparently produce the brown resin that bathes the young developing organs and is presumably protective in nature. The resin is highly aromatic when dissolved in alcohol, to which fact the epithet also alludes. This resin also occurs in a number of Antillean species.

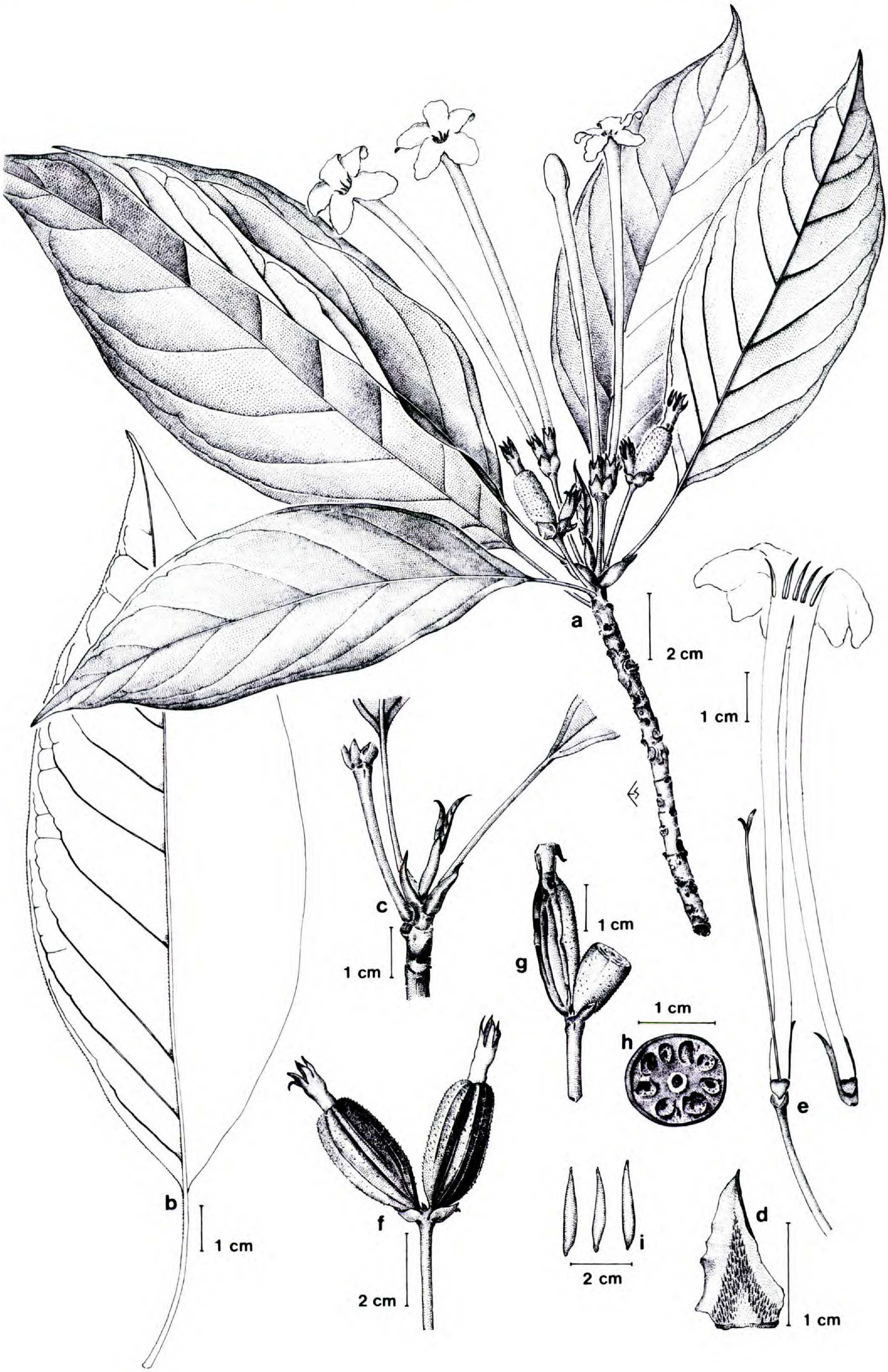
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TABLE 1. Some diagnostic morphological characters of the two species of *Antirhea* known from Mexico.

Character	*A. aromatica*	*A. lucida*
Vegetative pubescence	hirtellous-hirsutulous	glabrous
Resin	present	absent
Stipule size (mm)	11–14 by 5–7	4–7 by 1.5–2
Petiole length (mm)	15–60	3–10
Lamina size (mm)	90–200 by 35–90	45–65 by 20–35
Number of secondary vein pairs	6–8	10–11
Number of flowers per inflorescence	2	22–30
Calyx length, total (mm)	10–14	2–3
Corolla tube length (mm)	90–117	4–5
Fruit size (mm)	25–37 by 10–16	5–7 by 3–4

Common name. "Chicahuastle."

Uses. The wood is said to be used locally for construction of houses.

Habitat. The area around Jalcomulco and Apazapan is characterized by series of limestone hills and canyons with altitudes ranging from 350 to 1,000 m dissected by a river system. The limestone outcrops are covered with a thin, black clay soil displaying rapid runoff during rains. The area was originally covered by low, seasonally deciduous tropical forest intergrading with areas of taller semideciduous tropical forest in canyons and on slopes. Much of this forest has been converted for sugar cane and mango plantations. Characteristic arboreal components of the low deciduous forest are: *Bauhinia divaricata* L., *Bursera simaruba* (L.) Sarg., *Calliandra* spp., *Comocladia engleriana* Loes., *Diospyros veraecrucis* Standley, *Diphysa robinioides* Benth., *Pistacia mexicana* H.B.K., *Plumeria rubra* L., and *Spondias* sp., *Opuntia* spp., and columnar cacti, as well as *Hechtia* spp., abound in the lower stratum and understory. Dominant tree species of the taller semideciduous forest include: *Brosimum alicastrum* Sw., *Bursera simaruba* (L.) Sarg., *Hyperbaena mexicana* Miers, *Manilkara zapota* (L.) Van Royen, and *Protium copal* (Schldl. & Cham.) Engl.

Diversity of woody species is high in the area, which may be partly due to the series of ecotones between the two forest types. *Antirhea aromatica* occurs only in the most humid canyons where it is a fairly common mid-stratum component of the tropical semideciduous forest.

Antirhea aromatica is easily distinguished from *A. lucida,* the only other species to occur in Mexico and northern Mesoamerica, by the characters listed in Table 1. It differs from the other Antillean members of the genus by its larger, thinner leaves and much larger flowers and fruits. Its closest relative appears to be *A. involucrata* Urban & Ekman from Hispaniola, which also grows on limestone, is resinous, and has a two-flowered involucrate inflorescence with a relatively large corolla and fruit. The latter species differs by its thicker glabrous leaves, a smaller subsessile inflorescence, and smaller flowers and fruits with a 5–6-celled ovary. The Panamanian *A. trichantha* differs in having a densely puberulent, many-flowered panicle and much smaller flowers and fruits.

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FIGURE 1. Habit and details of *Antirhea aromatica* Castillo-Campos & Lorence.—a. Habit, with flowers and fruits.—b. Detail of leaf, showing venation.—c. Detail of branch apex, showing stipules, petioles, and floral peduncle.—d. Stipule, internal surface showing patch of resin glands.—e. Detail of opened flower.—f. Detail of mature fruits.—g. Mature fruits, sectioned longitudinally and transversally.—h. Transverse section of mature fruit.—i. Seeds. Illustration by E. Saavedra (INIREB), based on *Castillo-Campos 2957.*